

## CLAIM OR CLAIMS

### WE CLAIM:

1. A microarray comprising a substrate on which are arranged a plurality of subarrays, wherein each subarray on the microarray is surrounded by a hydrophobic barrier, which separates each subarray from an adjacent subarray and wherein the hydrophobic barrier inhibits fluid communication between each subarray of the microarray.
2. The microarray of Claim 1 wherein the hydrophobic barrier comprises of a hydrophobic group-bearing phosphoramidite.
3. The microarray of Claim 2 wherein the hydrophobic group-bearing phosphoramidite is a trityl protected phosphoramidite.
4. The method of Claim 1 wherein the hydrophobic barrier is flexibly deployable within the array and can be placed with great precision immediately adjacent to and surrounding the subarray areas.
5. A method for preparing a microarray having a hydrophobic barrier defining a plurality of subarrays on the microarray, the method comprising the steps of:
  - a) selecting at least one probe set comprising probes of interest;
  - b) synthesizing the probe sets on a microarray slide to provide the plurality of subarrays;
  - c) depositing between each of the subarrays a hydrophobic group-bearing phosphoramidite to provide a hydrophobic barrier which surrounds each subarray; and
  - d) inhibiting fluid communication between each of the subarrays on the microarray.
6. The method of Claim 5 wherein hydrophobic barrier is synthesized using a hydrophobic group-bearing phosphoramidite.
7. The method of Claim 6 wherein the phosphoramidite is a trityl protected phosphoramidite.

8. The method of Claim 5 wherein the hydrophobic barrier is flexibly deployable within the array and can be placed with great precision immediately adjacent to and surrounding the subarray areas.